

REMARKS

Reconsideration of the present application is respectfully requested. Claims 4-13 are pending, out of which claim 4 is independent. Claims 4-7 and 10-13 are amended, not for reasons related to patentability, but to clarify the claimed invention. Claims 14-45, 47-49, and 51-55 were previously withdrawn.

Claim Objections

In the outstanding Office Action, the Examiner has objected to claims 10-13 as being in improper form because a multiple dependent claim may not depend on a multiple dependent claim. Applicants have amended claims 10-13 to depend solely on independent claim 4, thus obviating the Examiner's objection. Accordingly, Applicants respectfully request withdrawal of the Examiner's objection of claims 10-13. Although the Examiner has not considered these claims on their merits, Applicants submit that claims 10-13 are allowable over the cited art for the reasons provided below.

Claim Rejections under 35 U.S.C. §102(b)

In the outstanding Office Action, the Examiner has rejected claims 4-5 as being allegedly anticipated by U.S. Patent 6,111,251 to Hillenkamp, hereinafter referred to as "Hillenkamp." Applicants respectfully traverse in light of the below remarks.

Claim 4 recites a mass spectrometry system comprising a microchip which has a channel through which a sample passes and a sample separation area being provided in the channel. The channel is provided on a surface of a substrate, and the sample separation area has a plurality of columnar bodies. A light irradiation unit irradiates the sample separation area with a laser beam while moving a light irradiation position along the sample separation area to generate a fragment

of the sample. The fragment of the sample is analyzed by an analytical unit to obtain mass spectrometric data.

In contrast, Hillenkamp does not disclose or suggest the invention recited in claims 4-5. Hillenkamp discloses a matrix-assisted laser desorption/ionization (MALDI) process to thermalize large analyte ions in a plume of desorbed material for spectroscopic analysis. *See Hillenkamp, abstract.* In one embodiment, the apparatus involves capturing a nucleic acid onto a pintool, as shown in FIGS. 10-12 and described from col. 10 line 36 to col. 11 line 14 of Hillenkamp. Briefly, a nucleic acid undergoes a Polymerase Chain Reaction (PCR), the product of which is captured on the tips of the pins in the pintool. When a voltage is applied to the pintool, the nucleic acids are attracted towards the anode (tip). Different pin configurations are disclosed, with a preferred embodiment showing pins about 5mm in length and 1mm in diameter. *See col. 11 lines 22-36 of Hillenkamp.*

Notably, Hillenkamp does *not* disclose a “microchip which has a channel through which a sample passes and a sample separation area provided in said channel” as recited in claim 4. At best, the only “channel” in Hillenkamp is a hole through the center of the pins, to accommodate an optic fibre for mass spectrometer detection. *See Hillenkamp, FIG 11.* This is in no way the same as the “channel” in the present invention, because the present invention claims a channel through which a sample passes. An optic fibre is not a sample, it is a measuring device for measuring the sample. Moreover, Hillenkamp does not disclose “a separation area provided in said channel.”

Furthermore, the “pins” in Hillenkamp are different than the “columnar bodies” recited in the present claims. Besides the fact that the dimensions of the pins are orders of magnitude apart, and the functions served are completely different, the present claims recite a “sample separation

area provided in said channel...wherein the sample separation area has a plurality of columnar bodies." See claim 4. This means that the columnar bodies reside within a separation area, said separation area further residing within a channel. Hillenkamp does not disclose such a configuration. The Examiner equates the "channels" within the pins to the channel in the present invention. This is not the same as a sample separation area (within a channel) having a plurality of columnar bodies.

It is well-settled by the Courts that "Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Company, et al.*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir., 1984). As shown above, Hillenkamp does not disclose each and every element of claims 4-5. Therefore, Hillenkamp cannot be said to anticipate the invention of claims 4-5. Accordingly, Applicants respectfully request withdrawal of the anticipation rejections of claims 4-5.

Claim Rejections under 35 U.S.C. §103(a)

In the outstanding Office Action, the Examiner rejects claims 6-9 as being allegedly obvious over Hillenkamp in view of the knowledge of one having ordinary skill in the art. Specifically, the Examiner asserts that it would have been obvious to one having ordinary skill in the art to contemplate other variations of columnar body arrangements to accommodate a desired test setup or apparatus. Applicants respectfully traverse.

As described above, Hillenkamp does not disclose the invention recited in independent claim 4. Since claims 6-9 depend directly or indirectly on claim 4, claims 6-9 necessarily incorporate the elements recited in claim 4. Therefore, for at least the above reasons, one having ordinary skill in the art would not be able to combine his knowledge with Hillenkamp to arrive at


the invention recited in claims 6-9. Moreover, since the “pins” in Hillenkamp are different than the “columnar bodies” recited in the present claims, Hillenkamp cannot be said to teach “varying the number of columnar bodies to accommodate a standard 384 well micro plate format” as the Examiner alleges. Accordingly, Applicants respectfully request withdrawal of the obviousness rejections of claims 6-9.

Conclusion

In light of the aforementioned distinctions, Applicants submit that Hillenkamp does not disclose, suggest, or render obvious the invention recited in claims 4-9. Therefore, claims 4-9 are allowable over the cited art. Further, although the Examiner has not addressed claims 10-13 on their merits, Applicants submit that claims 10-13 are allowable over the cited art for at least the reasons provided above.

Accordingly, Applicants believe that the Application is now allowable, and respectfully request that the Examiner reconsider the rejection and allow the Application. Should the Examiner have any questions regarding this Amendment, or regarding the Application generally, the Examiner is invited to telephone Applicants’ undersigned attorney.

Respectfully submitted,


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